

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 632 (1978): Gamma-BHC (Lindane) Emulsifiable Concentrates [FAD 1: Pesticides and Pesticides Residue Analysis]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 632 - 1978
(Reaffirmed 2002)

Indian Standard

**SPECIFICATION FOR GAMMA-BHC (LINDANE)
EMULSIFIABLE CONCENTRATES**

(Fourth Revision)

Third Reprint SEPTEMBER 2007
(Including Amendment No. 1&2)

UDC 632.951 : 547.539.261

© Copyright 1978

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR GAMMA-BHC (LINDANE) EMULSIFIABLE CONCENTRATES

(*Fourth Revision*)

Pest Control Sectional Committee, AFCDC 6

<i>Chairman</i>	<i>Representing</i>
DR S. N. BANERJEE	Directorate of Plant Protection, Quarantine & Storage (Ministry of Agriculture & Irrigation), Faridabad
<i>Members</i>	
DR N. S. AGARWAL	Department of Food (Ministry of Agriculture & Irrigation), New Delhi
DR K. KRISHNAMURTHY (<i>Alternate</i>)	Ministry of Defence (R & D)
DR P. N. AGARWAL	Pesticides Association of India, New Delhi
DR N. P. RAO (<i>Alternate</i>)	Central Forensic Science Laboratory, Central Bureau of Investigation, New Delhi
SHRI H. S. BAHL	Pesticides Formulators Association of India (S.S.I.), Bombay
DR H. L. BAMI	Alkali & Chemical Corporation of India Limited, Calcutta
DR S. R. BAROOAH	
DR N. K. BASU	
DR T. V. RAGHURAMAN (<i>Alternate</i>)	Hindustan Insecticides Limited, New Delhi
DR A. K. BHATNAGAR	
SHRI C. C. ABRAHAM (<i>Alternate</i>)	Ciba-Geigy of India Limited, Bombay
SHRI V. G. DESHPANDE	
SHRI E. A. ALMEIDA (<i>Alternate</i>)	Export Inspection Council of India, New Delhi
SHRI O. P. DHAMIJA	
SHRI P. K. CHATTERJEE (<i>Alternate</i>)	National Malaria Eradication Programme, Delhi
DR M. S. DHATT	Directorate General of Armed Forces Medical Services (Ministry of Defence), New Delhi
DIRECTOR GENERAL ARMED FORCES MEDICAL SERVICES	
REAR-ADMIRAL M. S. MALHOTRA (<i>Alternate</i>)	
DIRECTOR OF AGRICULTURE	Department of Agriculture, Government of Uttar Pradesh, Lucknow
DEPUTY DIRECTOR (PLANT PROTECTION) (<i>Alternate</i>)	

(*Continued on page 2*)

© Copyright 1978

BUREAU OF INDIAN STANDARDS

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
DRUGS CONTROLLER (INDIA)	Indian Pharmacopoeia Committee (Ministry of Health & Family Welfare), New Delhi
SHRI M. RAVIKANT (<i>Alternate</i>)	
SHRI G. D. GOKHALE	Bombay Chemicals Private Limited, Bombay
SHRI V. V. KETKAR (<i>Alternate</i>)	
JOINT DIRECTOR OF AGRICULTURE (DEVELOPMENT & ICP)	Department of Agriculture, Government of Karnataka, Mysore
DEPUTY DIRECTOR OF AGRICULTURE (PLANT PROTECTION) (<i>Alternate</i>)	
DR R. L. KALRA	Punjab Agricultural University, Ludhiana
DR R. P. CHAWLA (<i>Alternate</i>)	
DR KISHAN SINGH	Indian Institute of Sugarcane Research (ICAR), Lucknow
DR S. C. SRIVASTAVA (<i>Alternate</i>)	
SHRI S. G. KRISHNAN	National Organic Chemical Industries Limited, Bombay
DR J. S. VERMA (<i>Alternate</i>)	
SHRI S. K. MAJUMDAR	Central Food Technological Research Institute (CSIR), Mysore
SHRI M. MUTHU (<i>Alternate</i>)	
SHRI K. S. MEHTA	Bharat Pulverising Mills Private Limited, Bombay
SHRI S. CHATTERJI (<i>Alternate</i>)	
DR A. L. MOOKERJEE	Cyanamid India Limited, Bombay
SHRI J. P. PARIKH (<i>Alternate</i>)	
DR S. K. MUKERJEE	Agricultural Chemicals Division, Indian Agricultural Research Institute (ICAR), New Delhi
DR N. K. ROY (<i>Alternate</i>)	
DR K. D. PAHARIA	Central Insecticides Board, Directorate of Plant Protection, Quarantine & Storage (Ministry of Agriculture & Irrigation), Faridabad
DR S. Y. PANDIT	Bayer (India) Limited, Bombay
SHRI D. N. NAKHATE (<i>Alternate</i>)	
DR T. N. PARTHASARATHY	Regional Research Laboratory (CSIR), Hyderabad
SHRI M. A. PATEL	Department of Agriculture, Government of Gujarat, Ahmadabad
SHRI Y. A. PRADHAN	Rallis India Limited, Bombay
DR Z. J. KAPADIA (<i>Alternate</i>)	
DR F. RAHMAN	Tea Research Association, Calcutta
DR G. SATYANARAYANA (<i>Alternate</i>)	
SHRI G. K. RAO	Ministry of Defence (DGI)
DR A. K. SEN (<i>Alternate</i>)	
SHRI K. R. NARAYANA RAO	Food Corporation of India, New Delhi
SMT K. K. M. BHAVNANI (<i>Alternate</i>)	
DR RATTAN LAL	Entomology Division, Indian Agricultural Research Institute (ICAR), New Delhi
DR K. D. SHARMA	Directorate General of Technical Development, New Delhi
DR K. S. SINGH	Indian Veterinary Research Institute (ICAR), Izatnagar
SHRI S. C. SRIVASTAVA (<i>Alternate</i>)	

(Continued on page 7)

(Continued from page 2)

<i>Members</i>	<i>Representing</i>
SHRI K. VENKATACHALAM	Department of Agriculture, Government of Andhra Pradesh, Hyderabad
SHRI K. SATYANARANA RAO (Alternate)	
SHRI N. S. VENKATARAMAN	Department of Agriculture, Government of Tamil Nadu
DR P. R. VENKATESWARAN	Union Carbide India Limited, New Delhi
DR K. N. SHRIVASTAVA (Alternate)	
SHRI N. G. WAGLE	Pest Control (India) Private Limited, Bombay
SHRI M. R. BAJIKAR (Alternate)	
DR B. L. WATTAL	National Institute of Communicable Diseases, Delhi
SHRI T. PURNANANDAM, Deputy Director (Agri & Food)	Director General, ISI (<i>Ex-officio Member</i>)
<i>Secretary</i>	
SHRI LAJINDER SINGH Assistant Director (Agri & Food), ISI	

Pesticides Subcommittee, AFCDC 6 : 1

<i>Convener</i>	
DR K. D. PAHARIA	Central Insecticides Board, Directorate of Plant Protection, Quarantine & Storage (Ministry of Agriculture & Irrigation), Faridabad
<i>Members</i>	
DR N. S. AGARWAL	Department of Food (Ministry of Agriculture & Irrigation), New Delhi
DR K. KRISHNAMURTHY (Alternate)	
SHRI E. A. ALMEIDA	Ciba-Geigy of India Limited, Bombay
DR H. L. BAM	Central Forensic Science Laboratory, Central Bureau of Investigation, New Delhi
DR N. K. BASU	Alkali & Chemical Corporation of India Limited, Calcutta
DR A. P. DUTTA (Alternate)	
DR A. K. BHATNAGAR	Hindustan Insecticides Limited, New Delhi
SHRI C. C. ABRAHAM (Alternate)	
DR N. F. DESAI	Sandoz (India) Limited, Thane
DR P. S. PHADKE (Alternate)	
DR M. S. DHATT	National Malaria Eradication Programme, Delhi
SHRI G. D. GOKHALE	Bombay Chemicals Private Limited, Bombay
SHRI V. V. KETKAR (Alternate)	
DR KALYAN SINGH	U. P. Institute of Agricultural Sciences, Kanpur
SHRI K. S. MEHTA	Bharat Pulverising Mills Private Limited, Bombay
SHRI S. CHATTERJI (Alternate)	
SHRI L. S. MIRLE	Agromore Limited, Bangalore
DR S. K. MUKHERJEE	Agricultural Chemicals Division, Indian Agricultural Research Institute (ICAR), New Delhi
DR N. K. ROY (Alternate)	
DR S. Y. PANDIT	Bayer (India) Limited, Bombay
SHRI D. N. NAKHATE (Alternate)	

(Continued on page 8)

(Continued from page 7)

<i>Members</i>	<i>Representing</i>
DR T. N. PARTHASARATHY PLANT PROTECTION ADVISER TO THE GOVERNMENT OF INDIA	Regional Research Laboratory (CSIR), Hyderabad Directorate of Plant Protection, Quarantine & Storage (Ministry of Agriculture & Irrigation), Faridabad
DR V. LAKSHMINARAYANA (<i>Alternate</i>)	
SHRI Y. A. PRADHAN	Rallis India Limited, Bombay
SHRI M. L. SHAH (<i>Alternate</i>)	
DR V. S. RAMANATHAN	Central Revenues Control Laboratory (Ministry of Finance), New Delhi
SHRI C. DHARMA RAO	Pesticides Testing Laboratory, Hyderabad
SHRI D. N. V. RAO	Tata Chemicals Limited, Mithapur
SHRI C. NEELKANTHAN (<i>Alternate</i>)	
DR K. K. SAXENA	Indofil Chemicals Limited, Bombay
DR G. NATARAJAN (<i>Alternate</i>)	
SHRI A. C. SHROFF	Excel Industries Limited, Bombay
SHRI P. V. KANGO (<i>Alternate</i>)	
SHRI K. SUNDARAM	Hindustan Petroleum Corporation Limited, Bombay
SHRI B. R. AJMANI (<i>Alternate</i>)	
SHRI N. S. VENKATARAMAN	Pesticides Testing Laboratory, Kovilpatti
DR B. L. WATTAL	National Institute of Communicable Diseases, Delhi
SHRI V. N. BHATNAGAR (<i>Alternate</i>)	

AMENDMENT NO. 1 SEPTEMBER 1988
TO
IS : 632-1978 SPECIFICATION FOR GAMMA-BHC
(LINDANE) EMULSIFIABLE CONCENTRATES

(Fourth Revision)

(Page 4, clause 2.2.5) — Add the following note at the end of the clause :

'NOTE — The material need not be subjected to heat treatment if it has crossed half of its shelf life as ascertained from the date of manufacture and date of expiry declared on the container.'

(AFCDC 6)

AMENDMENT NO. 2 MAY 1994
TO
IS 632 : 1978 SPECIFICATION FOR GAMMA-BHC
(LINDANE) EMULSIFIABLE CONCENTRATES

(Fourth Revision)

(Page 4, clause 2.2.5) — Delete.

(Page 6, clause 4.1) — Substitute the following for the existing:

‘When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 : 1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause 2.3.1 of the standard.’

(FAD 1)

Printed at Prabhat Offset Press, New Delhi-2

Indian Standard
SPECIFICATION FOR GAMMA-BHC (LINDANE)
EMULSIFIABLE CONCENTRATES
(*Fourth Revision*)

0. F O R E W O R D

0.1 This Indian Standard (Fourth Revision) was adopted by the Indian Standards Institution on 31 January 1978, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 Gamma-BHC (Lindane) emulsifiable concentrate are widely used in the control of pests of agricultural crops.

0.3 Gamma-BHC emulsifiable concentrate is generally manufactured to contain 20 percent (*m/m*) of gamma-isomer.

0.4 This standard was first issued in 1956 as BHC (HCH) emulsifiable concentrates. It was revised in 1958 to incorporate changes regarding the determination of gamma-BHC content in the formulation in order to specify either the chromatographic or polarographic method. The second revision was issued in 1966 and the third revision in 1972. As now the Central Insecticides Board (CIB) has approved this product to be formulated exclusively from Gamma-BHC (Lindane), it is being aligned with these requirements in the present version.

0.5 In the preparation of this standard, due consideration has been given to the provisions of the Insecticides Act, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for Gamma-BHC (Lindane) emulsifiable concentrates.

2. REQUIREMENTS

2.1 Constituents — The material shall consist of Gamma-BHC (Lindane) dissolved in suitable solvent(s), with emulsifying agent(s) and with and without stabilizer(s) and coupler(s).

2.1.1 Gamma-BHC (Lindane), employed in the manufacture of this material shall conform to IS:882-1956*.

2.2 Physical — The material shall comply with the physical requirements given in 2.2.1 to 2.2.5.

2.2.1 Description — The material shall be stable liquid free from extraneous impurities and sediment. Suspended material shall be negligible. It shall be free from odour of BHC.

2.2.2 Cold Test — No turbidity or separation of solid or oily material shall occur when the concentrate is subjected to the cold test at 10°C as described in 13.1 of IS:6940-1973† or any other lower temperature as agreed to between the purchaser and the supplier.

2.2.3 Flash Point (Abel) — When determined by the method described in IS:1448 [P:20]-1960‡, flash point of the material shall be not below 24.5°C.

2.2.4 Emulsion Stability — Any separation, including creaming at the top and sedimentation at the bottom, of 100 ml of emulsion prepared in standard hard water with 5 ml of concentrate for public health use and with 2 ml of concentrate for agricultural use, shall not exceed 2 ml when tested by one of the methods prescribed in 13.3 of IS:6940-1973†.

2.2.5 Heat Stability — After treating in accordance with the procedure in 13.4 of IS:6940-1973†, the material shall comply with the requirements of 2.2.1 to 2.2.4 and 2.3.1 of this specification.

2.3 Chemical — The material shall comply with the chemical requirements given in 2.3.1 and 2.3.2.

2.3.1 Gamma-Isomer Content — When determined by the method prescribed in Appendix A of IS:561-1978§ the observed Gamma-Isomer content,

*Specification for Gamma-BHC (Lindane).

†Methods of tests for pesticides and their formulations.

‡Methods of tests for petroleum and its products, P:20 Flash point by Abel apparatus.

§Specification for BHC (HCH) dusting powders (*fourth revision*).

percent (m/m) of any of the samples shall not differ from the declared nominal value on the containers by more than the tolerance limits indicated below:

<i>Nominal Value</i>	<i>Tolerance Limit, percent</i>	
Up to 9	+10 - 5	} of the nominal value
10 and below 50	± 5	
50 and above	+ 5 - 3	

2.3.1.1 The actual value of gamma-isomer content shall be calculated to the second decimal place and then rounded off to the first decimal place before applying the tolerances as stipulated in 2.3.1.

2.3.1.2 The average content of all samples taken shall not be lower than the nominal content.

2.3.2 Acidity or Alkalinity — When tested by the methods prescribed in 13.5 of IS:6940-1973*, the acidity (as H_2SO_4) shall not be more than 0.2 percent by mass or alkalinity (as NaOH) shall not be more than 0.05 percent by mass.

3. PACKING AND MARKING

3.1 Packing — The material shall be packed according to the requirements given in IS:8190 (Part II)-1976†.

3.2 Marking — The containers shall bear legibly and indelibly the following information and any other information as is necessary under the Insecticides Act and Rules:

- a) Name of the material,
- b) Name of the manufacturer,
- c) Date of manufacture,
- d) Batch number,
- e) Net mass of contents,
- f) Nominal Gamma-Isomer content percent (m/m), and
- g) The cautionary notice worded as in Insecticides Act and Rules.

*Methods of tests for pesticides and their formulations.

†Requirements for packing of pesticides: Part II Liquid pesticides.

IS : 632 - 1978

3.2.1 The product may also be marked with Standard Mark.

3.2.2 The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufactures or producers may be obtained from the Bureau of Indian Standards.

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in 'Indian Standard methods for sampling of pesticides and their formulations' (*under preparation*).

NOTE — Till such time this standard is published, the sample be drawn as agreed to between the parties concerned.

5. TESTS

5.1 Tests shall be carried out by the appropriate methods referred to in 2.2.2 to 2.2.5, 2.3.1 and 2.3.2.

5.1.1 For estimating of Gamma-Isomer by polarographic method, proceed direct with the sample without any extraction in soxhlet extraction.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS:1070-1977*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

*Specification for water, for general laboratory use (*second revision*).

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 23230131, 23233375, 23239402

Fax: 91+011 23239399, 23239382

E - Mail : info@bis.org.in

website : <http://www.bis.org.in>

Central Laboratory:

Plot No. 20/9, Site IV, Sahibabad Industrial Area, SAHIBABAD 201010

Telephone

277 0032

Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

2323 7617

*Eastern : 1/14 CIT Scheme VII M, V.I.P. Road, Kankurgachi, KOLKATA 700054

2337 8662

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022

260 9285

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113

2254 1984

†Western: Manakalaya, E9, MIDC, Behind Marol Telephone Exchange,
Andheri (East), MUMBAI 400093

2832 9295

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001

560 1348

Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE

839 4955

Commercial-cum-Office Complex, Opp. Dushera Maidan, Arera Colony,
Bittan Market, BHOPAL 462016

242 3452

62-63, Ganga Nagar, Unit VI, BHUBANESHWAR 751001

240 3139

5th Floor, Koval Towers, 44 Bala Sundaram Road, COIMBATORE 641018

221 0141

SCO 21, Sector 12, Faridabad 121007

229 2175

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001

286 1498

53/5 Ward No. 29, R.G. Barua Road, 5th By-lane, Apurba Sinha Path,
GUWAHATI 781003

245 6508

5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001

2320 1084

Prithavi Raj Road, Opposite Bharat Overseas Bank, C-Scheme, JAIPUR 302001

222 3282

11/418 B, Sarvodaya Nagar, KANPUR 208005

223 3012

Sethi Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,
LUCKNOW 226001

261 8923

H. No. 15, Sector-3, PARWANOO, Distt. Solan (H.P.) 173220

235 436

Plot No A-20-21, Institutional Area, Sector 62, Goutam Budh Nagar, NOIDA 201307

240 2206

Patliputra Industrial Estate, PATNA 800013

226 2808

Plot Nos. 657-660, Market Yard, Gultkdi, PUNE 411037

2427 4804

"Sahajanand House" 3rd Floor, Bhaktinagar Circle, 80 Feet Road,
RAJKOT 360002

237 8251

T.C. No. 2/275 (1 & 2), Near Food Corporation of India, Kesavadasapuram-Ulloor Road,
Kesavadasapuram, THIRUVANANTHAPURAM 695004

255 7914

1st Floor, Udyog Bhavan, VUDA, Siripuram Junction, VISHAKHAPATNAM-03

271 2833

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, KOLKATA 700072

2355 3243

†Sales Office (WRO) Plot No. E-9, MIDC, Rd No. 8, Behind Telephone Exchange,
Andheri (East), Mumbai-400 0093

2832 9295